



QUICK RESPONSE

*Saving life and property through effective licensing, plan review,
and inspection of fire protection systems.*

October 2010

UPRIGHT SPRINKLER INSTALLATION

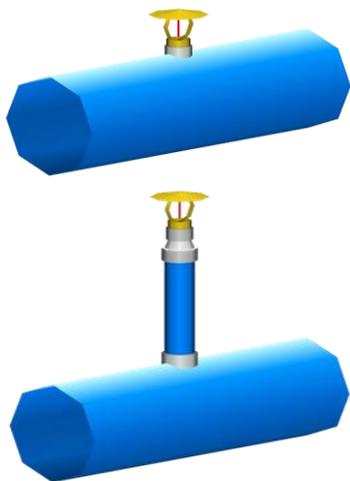
An **upright sprinkler's** frame arm and the piping below the sprinkler both represent potential obstructions to the water distribution pattern and can prevent a uniform spray pattern.

NFPA 13 requires that **upright sprinklers** shall be installed with the frame arms parallel to the branch line, unless specifically listed for other orientation. The purpose of this requirement is to minimize the obstruction of the discharge pattern. Even though the frame arm is designed to minimize obstruction, the potential for obstruction cannot be completely eliminated. Installation of an **upright sprinkler** with its frame arm parallel to the branch line minimizes the likelihood of the water distribution pattern being obstructed. Figure 1 illustrates an **upright sprinkler** installed with its frame arm installed in the proper orientation.



Figure 1

As stated earlier, an **upright sprinkler** may be listed allowing installation of the frame arms not parallel to the branch line. An example is some specific application sprinklers for combustible interstitial (concealed) spaces. Their listing permits the sprinkler frame arms to be positioned parallel to the truss or joist.



The pipe on which an **upright sprinkler** is located is not considered a major obstruction unless the piping is 3-inch or larger. **Upright sprinklers** on pipe 3-inch or larger must be placed on sprigs or offset from the pipe to eliminate the obstruction that is created directly below the sprinkler. Problems can occur when a fire is located directly below the sprinkler. The obstruction from the large pipe can prevent the sprinkler discharge from reaching the fire. The large pipe may also create dead-spots that might delay sprinkler activation.

Quick Response is presented monthly by the
Minnesota State Fire Marshal – Fire Protection Section

www.fire.state.mn.us